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PATENT ABSTRACTS OF JAPAN

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// CO1B 31/02(21) Application number: **2000317257**(22) Date of filing: **18.10.2000**(30) Priority: **18.10.1999 US 1999 420157**(71) Applicant: **LUCENT TECHNOLOG INC**(72) Inventor: **FILAS ROBERT WILLIAM****JIN SUNGHO****GERGORY P KOCHANSKI****ZHU WEI**(54) **ARTICLE HAVING POSITIONED NANOWIRES
AND PROCESS OF MANUFACTURING THE
SAME**

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(57) Abstract:

PROBLEM TO BE SOLVED: To provide an improved process of manufacturing an emitter structure from nanowires.

SOLUTION: In an embodiment, at least partially coated nanowires other than magnetic materials are provided. The nanowires have an average length of about 0.1 μm to about 10,000 μm . The nanowires are mixed into a liquid medium, and a magnetic field is applied to position the nanowires. The liquid medium contains precursor materials, such as conductive particles or metal salts or the like, which can be consolidated into a solid matrix. To the matrix are fixed the nanowires in a positioned direction. A portion of the positioned nanowires is exposed, for example, by etching of the surface portion of the matrix material, thereby providing the desired protrusion of the top of the nanowires.

